Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20544

In the Matter of	)	
	)	
Implementation of Section 17 of the	)	
Cable Television Consumer Protection and	)	ET Docket No. 93-7
Competition Act of 1992	)	
	)	
Compatibility Between Cable Systems	)	
and Consumer Electronic Equipment	)	

REPLY TO
OPPOSITIONS TO PETITIONS FOR RECONSIDERATION

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The National Cable Television Association, Inc. ("NCTA"), by its attorneys, hereby submits its reply to the oppositions to the Petitions for Reconsideration regarding compatibility between cable systems and consumer electronic equipment.

INTRODUCTION AND SUMMARY

In its Opposition to the Petitions for Reconsideration of the Commission's equipment compatibility Report and Order ("Order"), NCTA opposed certain positions taken by the Consumer Electronics Group of the Electronic Industries Association ("EIA") and Zenith Electronics Corporation with regard to separation of command set functions, channel mapping and the consumer advisory labeling requirement. Other parties also sought clarification that the separation issue in paragraph 42 of the Order -- i.e. the requirement that the Decoder Interface module separate

conditional access functions from all other non-security functions -- is not intended to preclude cable operators from providing competitive services.[1] And other cable commenters joined NCTA in objecting to EIA and Zenith's petition to eliminate the critical consumer advisory labeling requirement and to deny cable operators the ability to use channel mapping techniques to simplify and enhance the delivery of cable services. [2]

We will not reiterate these arguments on reply, except to urge the Commission to reject the Consumer Electronics Retailers Coalition baseless request to apply the Decoder Interface device separation requirement to set-top equipment as well. We also seek clarification that the separation rule does not require cable operators to physically separate the conditional access function from non-security functions in the set-back Decoder Interface module. Requiring cable operators to provide a separate descrambling-only device, and thereby limit their ability to provide an integrated, fully functional set-back module, will not promote a competitive equipment market and will impede consumer choice.

In addition, we continue to believe that the Commission's infrared ("IR") code policy is misguided and will have the unintended effect of impeding competition in the converter equipment market and limiting consumer options. Although EIA and the Consumer Federation of America/Home Recording Rights Coalition support the IR code restriction for cable operators, we believe that the alleged consumer benefits of this policy are far outweighed by its costs and other detrimental effects. We find, however, that there is room for a compromise approach -- the

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[1] See e.g. Opposition of General Instrument Corporation, Time Warner.

[2] See Opposition of Cablevision Industries, Time Warner.

standardization of IR codes used for basic command set functions in all cable and consumer electronic equipment.

One additional matter concerns the cable industry as we move forward in the final stages of achieving an industry-wide solution to cable/consumer electronic compatibility issues. In an effort to further its mission to control the features and functions of new consumer in-home equipment and thereby limit cable's ability to provide a versatile, feature-rich decoder device, EIA's Opposition filing attempts to shift the blame and burden of compatibility problems to the cable television industry.[3] But the Commission knows full well that Congress codified the two-sided aspects of the problem.[4]

Indeed, as set forth in the joint comments of the Cable-Consumer Electronics Compatibility Advisory Group ("CAG") earlier this year, the Commission's primary responsibility under the compatibility provisions of the 1992 Cable Act is to prescribe means of "assuring compatibility between televisions and video cassette recorders and cable systems, consistent with the need to prevent theft of cable service, so that cable subscribers will be able to enjoy the full benefit of both the programming available on cable

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[3] See e.g. EIA Opposition at 2 ("The Commission's overriding goal in this proceeding should be to make cable services more consumer friendly.")

[4] Order at para. 7 ("Congress recognized that there are a number of compatibility problems between cable service and consumer electronics equipment.) See also Order at paras. 8-16 (discussion of statutory provisions regarding, for example, the need for compatibility rules which enable cable operators to protect the integrity of the signals transmitted by the operator against theft and the need for technical requirements for television sets and VCRs sold as "cable ready" or "cable compatible"); para. 28 ("we believe the gradual nature of this regulatory program reasonably balances the statutory factors we are required to consider in prescribing these regulations.")

systems and the functions available on their televisions and video cassette recorders," citing 47 U.S.C. section 624A(b) (emphasis added). [5] And in recognition of this mandate, Congress directed the Commission to formulate regulations "in consultation with representatives of the cable industry and the consumer electronics industry."

We urge the Commission, therefore, to maintain its focus on the dual-nature of its three-phase compatibility program as it adopts the Decoder Interface standard and future digital transmission standards.

I. INFRARED CODES

The Electronic Industries Association ("EIA"), the Consumer Federation of America ("CFA") and the Home Recording Rights Coalition ("HRRC") oppose the petitions filed by cable operators and cable equipment manufacturers seeking relief from the Commission's stringent IR code rule. But they have provided no persuasive arguments to support the ban on operators' ability to upgrade equipment with advanced IR technology unless they maintain backwards compatibility.

While maintaining compatibility in subscriber-owned remote control devices is one factor in the equation, the Commission should balance this objective with its other compatibility goals. Indeed, there are a whole host of reasons, well-documented in the petitions, demonstrating that subscribers and new equipment manufacturers ultimately will be adversely effected by such a strict limitation on cable technology. As Hewlett-Packard asserts in

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[5] Comments of the Cable-Consumer Electronics Compatibility Advisory Group, January 25, 1994, at 1-2.

its Opposition, the IR code restriction is an "overly broad solution" to a relatively minor problem.

In a self-serving and highly exaggerated way, EIA argues that the 1992 Cable Act was designed to check "abuses" by cable operators who allegedly change set-top equipment on a whim. But the 1992 Cable Act provision that "prohibits a cable operator from taking any action that prevents or in any way disables the converter box supplied by the cable operator from operating compatibly with commercially available remote control units" was aimed at actions taken to frustrate the use of consumer-owned remote controls with the converter box already supplied by the cable operator. To the extent any operator engaged in such practices, they are now prohibited from doing so. But the statutory provision was not intended to limit the introduction of upgraded set-top equipment, perhaps from another manufacturer utilizing different IR technology. Nor was it intended to reduce competition in the supply of cable boxes to cable operators.

And, as NCTA and others noted in their Petitions, there is no incentive for operators to incur the cost to change out equipment just to gain the small amount from remote control rentals. Such action would make no economic sense.

EIA and CFA/HRRC also attempt to dismiss proprietary interests in IR technology. But set-top manufacturers have already gone on record in this proceeding that they possess copyright or patent rights in their IR code technology. While some may not have challenged the use of their IR codes in remote control units (which emit, rather than receive, IR signals), they have a much greater incentive to challenge integration of their proprietary

technology in a highly competitive converter equipment market.[6] Moreover, MSOs simply do not have the leverage, as EIA and CFA/HRRC contend, to demand that certain IR code technology be integrated into set-top equipment. But even if a manufacturer obtained licensing rights to other manufacturers' IR codes, it will not come without costs that will be passed on to consumers.

CFA/HRRC also claims that "if inexpensive pre-programmed remote control units can handle several different series of IR codes, there is no reason why new set-top boxes cannot do likewise." And EIA asserts, although its manufacturer members surely know better, that if universal remotes operate with multiple IR code capability, cable converter boxes can easily be produced to do the same. This is an overly simplistic analysis and, unfortunately, misses the fundamental technical difference and consequent cost implications between devices that emit a variety of IR formats and devices that receive a variety of IR formats.

The universal remote control device operates by sheer brute force -- in other words, it floods the room with non-discriminate infrared light at very high power.[7] Because the device produces such a strong signal, noise and interference from other IR energy in the room is not an issue and the device is very simple and straightforward to produce.

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[6] EIA's claim that "the codes themselves are not proprietary; rather, only the manner in which they are transmitted is proprietary" is a distinction without a difference. The IR code technology -- that is, its method of transmission and modulation parameters are the intellectual property of the vendor.

[7] The device is controlled by a microprocessor which stores enough coded information to generate the waveform through a power switching transister that has to drive the infrared light emitting diode.

An IR receiver, however, is a much more complex device. It must have the sensitivity to isolate and respond to signals weakened by being dispersed throughout the room and contaminated with noise and interference from other IR energy. Indeed, today's home environment is increasingly characterized by IR pollution, as more and more devices are remote controlled.[8] The technical challenge is to design a receiving circuit that is well-shielded against electrical signal pick-up yet has the sensitivity to accept the desired signal (this often requires installation of a low noise amplifier to strengthen the weak signal). Moreover, since the device is tuned to respond to the modulation frequency employed by the emitter, it discriminates against interference and by its very nature rejects all other IR codes.

The important point is that an IR receiver, such as a set-top converter, is a much more complicated and expensive device to manufacture in a "universal" IR format than a universal remote control device. As Hewlett Packard noted in its Petition, "trying to accommodate the difference in optical wavelength, multiple types of pulse coding, unmodulated and modulated techniques, and modulation carriers at various frequencies to create a single implementation presents a daunting design challenge." [9] And to design such a box would be extremely costly. Indeed, the appendix

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[8] For example, compact fluorescent lamps used for energy efficiency in lighting are major emitters of IR energy and tend to interfere with and even jam IR receivers. Thus, it is becoming more challenging to design IR receivers that can withstand such interference. But prohibiting IR code changes in cable boxes could force set-top receivers to continue to utilize codes that are susceptible to IR interference.

[9] Petition of Hewlett-Packard.

to General Instrument Corporation's Petition listed just some of the many varieties of IR formats in the market.

Given the technical requirements and consequent high cost of producing a "universal" converter box, the only means for a cable operator to upgrade equipment while complying with the Commission's IR code restriction is to purchase from manufacturers that make and stock versions of their product which correspond to the IR codes of their competitors (including, perhaps, even outdated codes).

Furthermore, as NCTA and other petitioners pointed out, if maintaining compatibility for subscriber-owned remotes is so critical, the same rationale applies to consumer electronics equipment and decoder interface equipment supplied by third parties. Without extending the policy to all providers on a uniform basis, the consumer is left with little protection -- particularly given the number and frequency with which they acquire consumer electronic equipment as compared to set-top cable equipment. As we noted in our Petition, ensuring compatibility in one area of in-home consumer equipment and not the other defeats the purpose of the rule.

The Cable Act directs the Commission to weigh the "costs and benefits" of imposing compatibility requirements. We submit that the costs of complying with the IR code restriction far outweigh the anticipated benefits of maintaining compatibility with all subscriber-owned remotes. Balancing the concerns that consumers retain remote control compatibility with its overriding concern that new and more advanced equipment be made available to them from a variety of competitors and at affordable cost, the Commission should rescind,or at least modify, its IR code policy.

In this regard, we believe that there is a workable alternative that will resolve the Commission's desire to protect consumers without freezing IR

code advancements and the introduction of new equipment. As NCTA offered in its Petition, the cable, consumer electronics and other interested industries could voluntarily adopt a set of standard infrared codes that would support most existing and potential command set functions between the remote and the set-top or set-back equipment. In supporting the IR code policy, CFA/HRRC noted its primary concern that subscribers be able to continue to use their remotes to operate basic functions (such as on/off, volume control, 0-9 channel selection). Thus, it is clear that there is some area of common ground on both sides of the issue: standardization of basic IR code functions.

But standardization only works to the benefit of consumers if all the affected industries participate in the process, including cable operators and consumer electronics equipment manufacturers.[10] EIA advocates restricting cable operators to introducing new equipment that utilizes the same IR codes for existing functions that were in use on the date of the Commission's compatibility Order. But we submit that all suppliers should operate from the same page here -- universal remote controls should be compatible with not only set-top equipment but "cable ready" receivers and the corresponding set-back decoder interface device. Only then will the Commission realize its desire to protect consumers.

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[10] In its Petition, NCTA offered to work out a universal set of commands that would cover not only basic functions but would be extendible to cover most potential new functions. To date, EIA has opposed this proposal. We submit that, at a minimum, the cable and consumer electronics industries should work together through the CAG's Decoder Interface Committee to adopt a standard set of the frequently used basic IR code commands.

II. SEPARATION OF ACCESS CONTROL AND OTHER FUNCTIONS

A. Set-Top Equipment

The opposition filed by the Consumer Electronics Retailers Coalition ("Coalition") makes it abundantly clear that the Commision must clarify paragraph 42 of its Order. The Coalition, which has played virtually no role in the entire CAG committee process, has made the unfounded argument that the Commission's "separation requirement" for the Decoder Interface Connector Device should apply to set-top equipment as well. In particular, it argues that the "the access module that cable operators must offer separately to subscribers, to comply with paragraph 42, must also be offered separately as part of new set-top devices to comply with paragraph 29."

As cable commenters made clear, however, the separation requirement in paragraph 42 only means that cable operators, in providing the decoder interface module, may not interfere with or impede other service providers from accessing the interface connector. The separation rule was never intended to apply to set-top equipment.

Indeed, it is clear in paragraph 29 that the reference to separation is aimed at the Decoder Interface device. The paragraph focusses on the importance of cable operators' retaining control over the means used to access their programming in the new "cable ready" environment. In recognizing that access control functions can be separated from other functions, the Commission states "as discussed in the next section, we support separation of these functions as a means for promoting competition in the market for equipment used to receive cable service." The "next section" deals with the Decoder Interface Connector and contains paragraph 42.

No other party in this proceeding has mistaken the Commission's intention to apply the separation requirement to the Decoder Interface module. The Coalition has come in at this late date to try to extend it to set-top devices for purely commercial reasons. The Commission, on the advice and recommendations of the CAG, has established a cost-effective program for improving compatibility between cable service and existing television and VCR equipment. Entertaining the Coalition's proposal will only create new opportunities for the sale of devices which are incompatible with existing in-home equipment. It will create set-top clutter and require more remote controls, cables and interconnections. And most importantly, it will facilitate more opportunities for devices to not work together, necessitating more service calls and consumer expense.

The only beneficiary under the Coalition's scenario is the retailer seeking to sell more equipment. The Commission should, therefore, reject the Coalition's request.

B. Decoder Interface Module

We are pleased that the EIA has clarified in its opposition and comments that the separation requirement in paragraph 42 does not mean that cable operators should be precluded from providing the Decoder Interface module with functions other than the signal access control function. But we continue to be concerned, however, about EIA's and now Compaq Computer's insistence that cable operators be required to provide some units which only perform the descrambling functions. As we pointed out in our initial Petition and Opposition, there is no legal or policy basis for limiting cable operators in this regard. And, as a practical matter, there is no reason to require the industry to tool up for products with no demonstrated market demand.

Moreover, as other commenting parties pointed out, there are technical and economic benefits to packaging the descrambler function with other features. Forcing a physical separation of the functions will increase costs and complexity and create hazards for inter-operability. As Time Warner points out, "the very same microprocessor contained in a cable descrambler to control security functions is used to provide on-screen displays and forced tuning capabilities. Since very little memory is required for these additional features, no significant savings to the customers would be realized if the same descrambling terminal were provided without the on-screen display and forced tuning capability."[11] If the microprocessor is duplicated, however, in order to physically separate the functions, the cost to consumers would be significantly higher than providing them within the descrambler circuitry.[12]

Furthermore, limiting cable operators to providing decoders which only perform signal security functions will weaken, rather than strengthen, the development of a competitive market for equipment used to receive cable service -- unless a similar prohibition is also imposed on the manufacturers of consumer electronics products and cable's competitors.[13]

Rather than crippling the Decoder Interface with arbitrary rules that force a physical separation of functions that should naturally work together through shared electronics, the Commission should take steps to ensure that the Decoder Interface realizes its full potential for the benefit of consumers.

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[11] Opposition of Time Warner at 8.

[12] Id.

[13] Opposition of Time Warner at 7-8. See also Petition for Reconsideration of General Instrument Corporation at 2-3.

As General Instrument points out, "it would be an absurd result if the Decoder Interface designed to alleviate [compatibility] problems winds up disabling features that network providers offer." We urge the Commission, therefore, to establish a robust Decoder Interface standard that facilitates the efficient passing of information and command signals back and forth between consumer electronic equipment and the component descrambler/decoder. [14]

C. Bundling

Compaq Computer Corporation places significant emphasis on its concern that the bundling of cable services with descrambling hardware could disadvantage other third party hardware suppliers. It argues that a clear line of demarcation should be established between the cable network and the in-home equipment. And Compaq also notes its concern that without such demarcation operators will be able to pass on the costs of new services in the Decoder Interface module to consumers through the general cable network.

As an initial matter, the cable industry has argued vigorously before the Commission that the component decoder module should not be deemed part of the general cable network, but should be charged separately to consumers desiring the device. In the Order, the Commission determined that it would address whether to allow cable operators to charge separately

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[14] See Petition of General Instrument Corporation at 4. See also Comments of the Cable-Consumer Electronics Compatibility Advisory Group, July 21, 1993 ("The Decoder Interface . . . allows appropriate signals to exit and enter the TV or VCR for external descrambling or decryption. It also conveys other signals which are necessary for supporting cable services other subscribers enjoy through the use of a set-top box.")

for the component decoder in a Further Notice of Proposed Rulemaking pending completion of an acceptable updated interface standard.[15]

Secondly, we submit that the Commission should establish a clear line of demarcation between features and display in order to see the full promise of competitive availability of innovative and feature-rich modules. This will only be accomplished if the Decoder Interface environment enables consumers to have flexible, external modules and if the TV and VCR does not lock out any future improvements. As we noted earlier, as long as the cable-supplied decoder unit does not hinder any other third party distributor or retailer from attaching a competitive device to the interface connector, there is no reason to preclude cable operators from providing fully-capable set-back equipment.[16]

Lastly, Compaq notes that many personal computers contain television tuner boards that allow them to function as TV receivers. It is critical that the Commission apply the rules for "cable-ready" equipment to these devices as well, in order to preserve the technical integrity of devices connected to cable systems.

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[15] Order at para. 40.

[16] Moreover, while Compaq has experience with computers connected to telephone lines through modems, it is relatively inexperienced with the cable network. There are major differences between cable and telephony, including architecture, service, consumer expectations and innovation.

CONCLUSION

For the foregoing reasons, the Commission should reconsider and modify its equipment compatibility rules in accordance with NCTA's initial Petition for Reconsideration and Opposition.

Respectfully submitted,

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